

What is claimed is:

1. A semiconductor device comprising:

a semiconductor wafer having a structure portion exposed on a surface thereof; and

an adhesive sheet detachably attached to the surface of the semiconductor wafer and covering the structure portion, the adhesive sheet having a flat sheet member and an adhesive portion provided generally on an entire surface of the sheet member, the adhesive portion having a specific region facing the structure portion, the specific region having an adhesion smaller than that of a vicinal region of the adhesive portion surrounding the specific region.

2. The semiconductor device of claim 1, wherein the adhesive portion is made of a UV setting adhesive, an adhesion of which is reduced by UV.

3. The semiconductor device of claim 1, wherein at least one of the adhesive sheet and the adhesive portion is made of a conductive material.

4. The semiconductor device of claim 1, wherein:

the adhesive sheet has a flat surface contacting the semiconductor wafer; and

the specific region and the vicinal region of the adhesive portion form a part of the flat surface of the adhesive sheet.

5. The semiconductor device of claim 1, wherein the sheet member is made of a material that transmits UV.

6. A method of manufacturing a semiconductor device, comprising:

preparing a semiconductor wafer having a structure portion exposed on a first surface thereof, and a flat first adhesive sheet holding an adhesive generally on an entire surface thereof; and

attaching the first adhesive sheet to the first surface of the semiconductor wafer to cover the structure portion by a specific region of the first adhesive sheet,

wherein an adhesion of the adhesive on the specific region is selectively reduced for covering the structure portion before or after attaching the first adhesive sheet to the semiconductor wafer.

7. The method of claim 6, further comprising:

attaching a second adhesive sheet to a second surface of the semiconductor wafer on which the structure portion is exposed on an opposite side of the first surface,.

8. The method of claim 7, further comprising:

after attaching the first adhesive sheet and the second adhesive sheet to the semiconductor wafer, cutting the semiconductor wafer by dicing together with the first adhesive sheet from the first surface toward the second surface;

reducing the adhesion of the adhesive at an entire region on the first adhesive sheet; and

removing the first adhesive sheet from the semiconductor wafer cut into chips.

9. The method of claim 6, further comprising:

after attaching the first adhesive sheet to the semiconductor wafer, cutting the semiconductor wafer by dicing from a second surface of the semiconductor wafer to the first surface;

reducing the adhesion of the adhesive at an entire region of the first adhesive sheet; and

removing the first adhesive sheet from the semiconductor wafer cut into chips.

10. The method of claim 6, further comprising:

removing the first adhesive sheet from the first surface of the semiconductor wafer;

ashing the first surface of the semiconductor wafer using one of ozone and oxygen radical.

11. The method of claim 6, wherein the first adhesive sheet is attached to the semiconductor wafer under vacuum.

12. The method of claim 6, wherein the first adhesive sheet is attached to the semiconductor wafer under

inert gas.

13. The method of claim 6, wherein the adhesive is a UV setting resin, adhesion of which is reduced by UV.

14. The method of claim 13, wherein the adhesion of the adhesive is reduced by UV having a wavelength of 254 nm or less.

15. The method of claim 13, wherein the adhesive includes a material that is colored by UV.

16. The method of claim 13, wherein selectively reducing the adhesion of the adhesive including:

covering the first adhesive sheet with a mask having a UV transmittable portion at a region corresponding to the specific region of the first adhesive sheet; and

irradiating the first adhesive sheet with UV through the UV transmittable portion of the mask to selectively harden the adhesive at the specific region on the first adhesive sheet.

17. The method of claim 16, wherein attaching the first adhesive sheet to the semiconductor wafer including positioning the specific region of the first adhesive sheet to the structure portion of the semiconductor wafer using the mask disposed on the first adhesive sheet, as a reference.

18. The method of claim 16, wherein attaching the first adhesive sheet to the semiconductor wafer including pressurizing the first adhesive sheet through the mask.

19. The method of claim 6, further comprising, before attaching the first adhesive sheet to the semiconductor wafer, removing static electricity from the first adhesive sheet.

20. The method of claim 19, wherein removing static electricity from the first adhesive sheet is performed by a conductive member that is disposed to contact the first adhesive sheet.

21. A method of manufacturing a semiconductor device, comprising:

preparing a semiconductor wafer having a structure portion exposed on a first surface thereof, a first adhesive sheet attached to the first surface and a specific region covering the structure portion of the semiconductor wafer, the specific region having adhesion that is smaller than that of a vicinal region thereof on the first adhesive sheet;

dicing the semiconductor wafer; and

reducing adhesion of an entire region of the first adhesive sheet.

22. The method of claim 21, wherein:

the structure portion is exposed on the first surface and on a second surface of the semiconductor wafer, and is covered with the first adhesive sheet attached to the first surface and with a second adhesive sheet attached to the second surface; and

the semiconductor wafer is diced together with the first adhesive sheet.

23. A method of manufacturing a semiconductor device, comprising:

attaching an adhesive sheet to a semiconductor wafer, the adhesive sheet being flat and having a first portion and a second portion, adhesion of which is smaller than that of the first portion; and

cutting the semiconductor wafer by dicing.

24. The method of claim 24, wherein the semiconductor wafer is cut at a position contacting the first portion.

25. The method of claim 24, further comprising, after cutting the semiconductor wafer, reducing the adhesion of the first portion of the adhesive sheet.

26. The method of claim 25, wherein the adhesion of the first portion is reduced by UV.

27. The method of claim 23, further comprising reducing the adhesion of the second portion of the adhesive sheet before attaching the adhesive sheet to the semiconductor wafer.

28. The method of claim 23, wherein the second portion of the adhesive sheet is harder than the first portion.